digital

FINISH SPECIFICATION

Finish Number: 092-A16X-XXX

1 HOT STAMPING FOR PLASTIC SUBSTRATES

1.1 PURPOSE

This finish is applicable to markings on plastic substrates that come under the generic term "Hot Stamping." This specification applies to logos, nameplates, and other informative or decorative markings. This specification does not apply to areas subject to high abrasion or other severe service requirements, such as the tops of key caps.

1.2 APPEARANCE QUALITY

Unless otherwise specified, this finish shall meet a quality level of 2, per *DEC STD 092-1 Finish and Color Standards*. When viewed from a distance of 18 inches, the markings shall exhibit no imperfections that would cause the viewer's attention to be immediately focused upon them.

The size and line width of characters shall be controlled by the art work and/or detailed drawings, supplied by Digital. The characters/markings shall have sharp corners and edges and shall not be crushed or distorted. The hot stamp shall be sharp and clear in color and free from foreign contamination, that would adversely affect the appearance of the stamped part.

Gloss: The gloss shall be within 20 to 40 units using a 60-degree gloss meter, per ASTM-D523.

Color: The color shall be indicated in the specification number and shall match the sample supplied by Digital.

1.3 PHYSICAL REQUIREMENTS

The following tests shall be run on actual parts, hot stamped to the final design requirements.

Hot stamped parts shall cure for a minimum of 24 hours, prior to any physical testing.

Conditions for testing and stabilization, cure time, shall be:

Temperature: 70 °F ± 5 °F; Relative Humidity: 45 % ± 5 %

a. Adhesion Requirements:

Scotch Brand #600 tape shall be applied with uniform pressure over the hot stamp, and shall be removed in a quick motion at a 90-degree angle to the surface. There shall be no evidence of the hot stamp pulling loose from the substrate and adhering to the tape after two applications.

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b. Solvent Resistance:

Place three drops of VM&P naptha on the hot stamp, rub continuously with a cotton swab, applying moderate pressure for a maximum of 15 seconds, then allow to evaporate. It shall be considered failure if the hot stamp is removed to base material, or softens and does not resume hardness.

It shall be a acceptable if a slight removal of hot stamp shows on the cotton swab. Also, the tested area may show some discoloration.

c. Environmental Requirements:

1. Temperature/Humidity - DEC STD 102-2

The finish shall be subjected to one cycle of the non-operating temperature/humidity test. There shall be no apparent effect on the hot stamp after the test, and the marking shall pass the adhesion test described above after exposure to these conditions.

2. Humidity - Federal Standard 141A, Method 6201

The finish shall be subjected to 95% relative humidity at 100°F, (38°C), for 24 hours. For acceptance, there shall be no apparent effect on the hot stamp after the test, and the marking shall pass the adhesion test described above after exposure to these conditions.

d. Abrasion Resistance:

This test shall be conducted on 4 inch x 4 inch x 1/4 inch (maximum) Taber Panels, of a suitable substrate plastic material.

The hot stamp shall not expose any substrate plastic after being subjected to 50 standard cycles of a Taber Abrader, using CS-10 wheels with a 500 gram load, per DEC STD 092-3.

1.4 PACKAGING/STORAGE/HANDLING

Before, during and after hot stamping, the parts shall not be subjected to any hostile environments that may adversely affect the appearance or function of the coating. The hot stamped parts shall also be properly packaged for their protection during normal handling and transporting operations.

1.5 GENERAL NOTES

The hot stamp process shall not affect the dimensional or structural integrity of the part being hot stamped.

Approved foils only, shall be used, as listed in DEC STD 092-7.

Regardless of appearance at any viewing distance, no defect is allowed that will affect the functional properties of the hot stamp. Suspect conditions shall be resolved by the responsible engineering group.

Inspection requirements - As a minimum, for lot acceptance, perform these tests per this specification:

1. Appearance Quality: By visual inspection
2. Adhesion: Tape test